Morphology of Rhynie Chert Carbonaceous Inclusions as Characterized Using Confocal Raman Imaging

Maia Schweizer
Geophysical Laboratory
Carnegie Institution of Washington
5251 Broad Branch Rd., NW, Washington, D.C. 20015
USA
maia.schweizer@univ.ox.ac.uk

Marc Fries
Geophysical Laboratory
Carnegie Institution of Washington
USA

Andrew Steele
Geophysical Laboratory
Carnegie Institution of Washington
USA

The 400-million-year-old Rhynie Chert from Scotland is famous for its exquisite preservation of the Earth's earliest land plants in hot spring deposits. Material from this fossiliferous chert has been characterized using confocal Raman imaging. Embedded fossil plant materials have been examined in transmission using thin sections as well as embedded material exposed on the surface of thick sections. For surface analysis, surface-enhanced Raman spectroscopy (SERS) was employed to amplify spectra and enhance the signatures of latent post-organic compounds. This data will be presented in context with other chert samples such as 3,465-million-year-old Apex chert as part of a study to characterize a series of progressively older cherts.